

WHAT IS CLAIMED IS:

1 1. A card transporting mechanism for a card reader in which
2 the trailing end of a card as viewed in a card transporting
3 direction is brought into contact with a first card
4 engaging/holding member moving in a card transporting direction,
5 and the card is transported by said first card engaging/holding
6 member, said card transporting mechanism comprising:

7 a carriage movable in the card transporting direction, said
8 first card engaging/holding member being mounted on such that said
9 first card engaging/holding member is movable between a first
10 position where said first card engaging/holding member comes in
11 contact with the trailing end of said card and a second position
12 where said first card engaging/holding member does not comes in
13 contact with said card; and

14 a transportation drive member, for transporting the card,
15 coupled to said first card engaging/holding member such that a
16 position of said first card engaging/holding member changes in
17 accordance with a moving direction of said transportation drive
18 member, and when said card travels in a first direction, said first
19 card engaging/holding member is located, by said transportation
20 drive member, at a position where said first card engaging/holding
21 member comes in contact with the trailing end face of said card,
22 and said card is transported by moving said carriage.

1 2. The card transporting mechanism according to claim 1,
2 wherein a second card engaging/holding member, which is movable
3 between a third position where said second card engaging/holding
4 member comes in contact with the leading end of said card and a
5 fourth position where said second card engaging/holding member
6 does not come in contact with the leading end of said card and
7 a fourth position, is coupled to said carriage such that when said
8 first card engaging/holding member is at said first position, said
9 second card engaging/holding member is placed at said fourth
10 position, and when said card is transported in the reverse
11 direction, said second card engaging/holding member is placed at
12 said third position, and said carriage is moved to transport said
13 card.

1 3. The card transporting mechanism according to claim 1 or 2,
2 wherein said first card engaging/holding member, which is located
3 closer to the card entrance side at the time of card insertion,
4 is located at said second position.

1 4. The card transporting mechanism according to claim 2,
2 wherein said first and second card engaging/holding members are
3 rotatably mounted on said carriage, and said transportation drive
4 member is a string-like member with an engaging portion so that
5 said first and second card engaging/holding members are
6 controllable from both sides thereof.

1 5. The card transporting mechanism according to claim 3,
2 wherein said first and second card engaging/holding members are
3 rotatably mounted on said carriage, and said transportation drive
4 member is a string-like member with an engaging portion so that
5 said first and second card engaging/holding members are
6 controllable from both sides thereof.

1 6. A method for discharging forcibly card for a card reader
2 in which a card inserted through an card entrance taken into the
3 inner part of the card reader by a card transporting means,
4 comprising the steps of:

5 coming a card engaging member coming in contact with said
6 card being provided on a moving body moving together with said
7 card so as to taking said card that is inserted through said card
8 entrance into the inner part of said image reader by said card
9 transporting means, when said card stays at said card entrance,
10 said moving body is moved to the inner part and said card engaging
11 member is moved to a position where said card engaging member comes
12 in contact with said card; and

13 moving said moving body toward said card entrance, and said
14 card engaging means being brought into engagement with the
15 inner-side end face of said card from the inner part of said card
16 reader, to thereby discharge said card out of said card reader.

1 7. A forcibly card discharging mechanism for a card reader in
2 which a card inserted through an card entrance is taken into the
3 inner part of the card reader by a card transporting means,
4 said card discharging mechanism comprising:

5 a moving body moving together with said card so as to taking
6 said card that is inserted through said card entrance into the
7 inner part of said image reader by said card transporting means;

8 a card engaging member moving together with said moving body,
9 coming in contact with said card, and also the inner-side end face
10 of said card; and

11 detecting means for detecting that said card stays at said
12 card entrance;

13 wherein said detecting means detects that said card stays,
14 said moving body is moved, thereafter said moving body is moved,
15 and said card engaging means is brought into engagement with the
16 inner-side end face of said card from the inner part of said card
17 reader, to thereby discharge said card out of said card reader.

1 8. The forcibly card discharging mechanism according to claim
2 7, wherein said card engaging member is a pressing member for
3 pressing said card against one of a card transportation reference
4 surface and a card engaging pawl member for transporting said card.

1 9. The forcibly card discharging mechanism according to claim
2 8, wherein said card transporting means includes a first card

3 transporting means for taking a card inserted through said card
4 entrance into said card reader, and a second card transporting
5 means for receiving said card taken in by said first card
6 transporting means and for transporting said card within said card
7 reader, and said second card transporting means transports said
8 card by moving said moving body.

1 10. The forcibly card discharging mechanism according to claim
2 9, wherein said first card transporting means includes card
3 engaging pawl members located at the front and rear ends of said
4 moving body, said card engaging pawl members raise and lay down
5 in a reverse fashion, and each said card engaging pawl member
6 engages the front end face or the inner-side end face of said card
7 while standing erect, to thereby transport said card.

1 11. A drive force transmission mechanism for selectively
2 transmitting a rotation of a motor to one of two drive systems
3 comprising:

4 first and second follower-side rotational gears provided
5 coaxial with a drive-side rotational gear rotated by said motor,
6 a planetary gear member in mesh with said drive-side
7 rotational gear and said second follower-side rotational gear
8 mounted on said first follower-side rotational gear,

9 selective engaging/stopping means for selectively engaging
10 and stopping one of said first and second follower-side rotational

11 gears is provided,

12 wherein said drive systems are coupled to said first and
13 second follower-side rotational gears.

1 12. The drive force transmission mechanism according to claim
2 11, wherein said drive-side rotational gear and said first and
3 second follower-side rotational gears are provided on a single
4 shaft in a juxtaposing fashion, said planetary gear member includes
5 two planetary gears mounted at both ends of a shaft rotatably held
6 at an eccentric position of said first follower-side rotational
7 gear, said first follower-side rotational gear includes a latch
8 portion latched by said selective engaging/stopping means and a
9 drive-force transmission gear portion, which are disposed around
10 said first follower-side rotational gear, said second
11 follower-side rotational gear includes a gear portion in mesh with
12 said planetary gear, and a latch portion latched by said selective
13 engaging/stopping means and a drive-force transmission gear
14 portion, which are disposed around said second follower-side
15 rotational gear.

1 13. The drive force transmission mechanism according to claim
2 12, wherein said selective engaging/stopping means includes a
3 rotational member with two engaging members which may engage said
4 two latch portions, and is rotated by a solenoid.

1 14. The drive force transmission mechanism according to claim
2 12, wherein said engaging member includes engaging pawls which
3 may engage said bifurcated latch portion.

1 15. A card transporting mechanism for selectively transmitting
2 a rotation of a motor to one of a card taking-in/discharging drive
3 means and a card transporting drive means comprising;

4 first and second follower-side rotational gears provided
5 coaxial with a drive-side rotational gear rotated by said motor;
6 a planetary gear member in mesh with said drive-side
7 rotational gear and said second follower-side rotational gear
8 mounted on said first follower-side rotational gear;

9 selective engaging/stopping means for selectively engaging
10 and stopping one of said first and second follower-side rotational
11 gears is provided,

12 wherein said card transporting drive means is coupled to
13 one of said first and second follower-side rotational gears.

1 16. The card transporting mechanism according to claim 15,
2 wherein said card transporting drive means includes a card
3 transporting member for transporting a card while being in contact
4 with the trailing end of said card, said taking-in/discharging
5 drive means takes in an inserted card to a position where said
6 card transporting member comes in contact with the trailing end
7 of said card.

1 17. A card transporting mechanism comprising:

2 a card engaging/holding member moving in a card transporting
3 direction, the trailing end of a card as viewed in a card
4 transporting direction being brought into contact with said card
5 engaging/holding member moving in a card transporting direction,
6 and the card is transported by said card engaging/holding member,

7 a carriage movable in the card transporting direction, said
8 card engaging/holding member is mounted on said carriage movable
9 in the card transporting direction such that said card
10 engaging/holding member is movable between a first position where
11 said card engaging/holding member comes in contact with the
12 trailing end of said card and a second position where said card
13 engaging/holding member does not comes in contact with said card,
14 said card engaging/holding member is moved between said first and
15 second positions by a transportion drive member for transporting
16 said card; and

17 a blocking portion for blocking the movement of said card
18 engaging/holding member to said second position, said blocking
19 portion is provided at first position.

1 18. The card transporting mechanism according to claim 17,
2 wherein said card engaging/holding members are located at the front
3 and rear positions of said carriage, said card engaging/holding
4 member located closer to the trailing end of said card as viewed
5 in the card transporting direction is located at said first

6 position, and said card engaging/holding member located closer
7 to the leading end of said card is located at said second position.

1 19. The card transporting mechanism according to claim 18,
2 wherein said card engaging/holding members located at said front
3 and rear ends of said carriage are coupled together by an
4 interlocking member coupled to said transportation drive member so
5 that said card engaging/holding members are turned concurrently.

1 20. The card transporting mechanism according to claim 19,
2 wherein said interlocking member consists of a single lever, and
3 a moving portion for moving said card engaging/holding member and
4 a blocking portion are provided on said lever while corresponding
5 to said two card engaging/holding members.

1 21. A shutter opening/closing mechanism with a shutter plate
2 which is movable between a first position where a card transporting
3 path is closed and a second position where said card transporting
4 path is opened, said shutter opening/closing mechanism comprising:
5 a drive source for moving said shutter plate; and
6 a connecting member for connecting a drive force of said
7 drive source to said shutter plate;
8 wherein the opening/closing-side end face of said shutter
9 plate is closed substantially parallel to said card transporting
10 path at said closing position, and said opening/closing-side end

11 face of said shutter plate is moved, by said drive source,
12 substantially parallel to said card transporting path.

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22. The shutter opening/closing mechanism according to claim
21, wherein said drive source is a solenoid, said connecting member
includes a slide moved by said solenoid and two turning members
coupled together by said slide member, said opening/closing-side
end face of said shutter plate is moved, by said two turning members,
substantially parallel to said card transporting path.

23. The shutter opening/closing mechanism according to claim
22, wherein said two connecting members are coupled so as to follow
said slide member in movement, and a blocking portion for blocking
its movement from said turning member side is provided said two
connecting members and said slide member.

24. The shutter opening/closing mechanism according to claim
21, wherein said connecting member includes a slide member moved
by said drive source, and one turning member coupled to said slide
member, and said opening/closing-side end face of said shutter
plate is moved, by said one turning member, substantially parallel
to said card transporting path.

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